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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
STEFAN KIRSCH, ET AL.	: EXAMINER: REDDY, K. P.
SERIAL NO: 10/579,096	:
FILED: MAY 12, 2006	: GROUP ART UNIT: 1796
FOR: POLYMER-CONTAINING SULFOSUCCINATE DISPERSIONS	:

THIRD APPEAL BRIEF

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

This is an appeal of the Rejection dated July 30, 2008 of twice-rejected Claims 1-9 and 21-23. Previous Notices of Appeal were timely filed on January 24, 2008 and June 26, 2008. A new Notice of Appeal is **submitted herewith**.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is BASF SE, having an address at 67056 Ludwigshafen, Germany.

II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' legal representative and the assignee are aware of no appeals, interferences, or judicial proceedings which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF THE CLAIMS

Claims 1-9 and 21-23 stand rejected and are herein appealed. Claims 10-20, 24 and 25 are canceled.

IV. STATUS OF THE AMENDMENTS

No amendment under 37 CFR 1.116 has been filed. However, an amendment under 37 CFR 1.111 is **filed herewith**, which amendment cancels Claims 10-20, 24 and 25.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

A summary of the claimed subject matter, as claimed in independent Claim 1, is mapped out below, with reference to page and line numbers in the specification added in **[bold]** after each element.

Claim 1 is drawn to a method of enhancing at least one performance property of an aqueous polymer dispersion comprising at least one water-soluble ionic compound, **[page 1, lines 5-6]** which comprises

removing at least 50 mol% of the at least one water-soluble ionic compound from the polymer dispersion, **[page 1, lines 7-8]** and then **[page 1, line 8]**

adding at least one salt of a monoalkyl or dialkyl ester of a sulfonated dicarboxylic acid. **[page 1, lines 8-9]**

VI. GROUNDS OF REJECTION

Ground (A)

Claims 10-20 and 24 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the description requirement.

Ground (B)

Claims 10-11, 15-16, 20 and 24 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over US 2002/0052433 (Auchter et al) as evidenced by US 6,262,144 (Zhao et al).

Ground (C)

Claims 10-13, 15-18, 20 and 24-25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over US 4,845,149 (Frazee) in view of Auchter et al.

Ground (D)

Claims 14 and 19 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Frazee in view of Auchter et al and WO 02/10306 (Kleiner et al).

Ground (E)

Claims 1-13, 15-18, 20-21, 23 and 25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over US 5,286,843 (Wood), as evidenced by US 4,940,732 (Pastorino et al), in view of a BASF technical information publication for Acronal ® A220 (BASF).

Ground (F)

Claims 1-13, 15-18, 20-21, 23 and 25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wood, as evidenced by Pastorino et al, in view of Auchter et al.

Ground (G)

Claim 22 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Wood as evidenced by Pastorino et al, in view of BASF and US 3,964,955 [sic, US 5,879,663] (Nakabayashi et al).

Ground (H)

Claim 22 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Wood as evidenced by Pastorino et al, in view of Auchter et al and Nakabayashi et al.

Ground (I)

Claims 14, 19 and 24 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wood as evidenced by Pastorino et al, in view of BASF and WO 02/10306 (Kleiner et al).

Ground (J)

Claims 14, 19 and 24 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wood as evidenced by Pastorino et al, in view of Auchter et al and Kleiner et al.

VII. ARGUMENT

Grounds (A) through (D), (I) and (J)

These grounds of rejection are all moot in view of the above-referenced amendment filed herewith.

Ground (E)

Claims 1-13, 15-18, 20-21, 23 and 25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wood, as evidenced by Pastorino et al, in view of BASF. The rejection is untenable and should not be sustained.

As recited in Claim 1, an embodiment of the present invention is a method of enhancing at least one performance property of an aqueous polymer dispersion comprising at least one water-soluble ionic compound, which comprises removing at least 50 mol% of the at least one water-soluble ionic compound from the polymer dispersion ("removing" step), and then adding at least one salt of a monoalkyl or dialkyl ester of a sulfonated dicarboxylic acid ("adding" step).

As described in the specification beginning at page 1, line 17, the action of water on an adhesive film leads to an unwanted clouding which is called water whitening, which clouding is known to be attributable to the presence of water-soluble ionic compounds in the adhesive film. The specification then describes that in EP-A-571069, which is from the same patent family of Wood, it is recommended that these ionic compounds be removed from polymer dispersions by treatment with an ion exchange resin. However, although the resulting polymer dispersions then have an improved water whitening behavior, other of their performance properties, such as poor wettability on customary substrates such as polymer films or silicone papers, result.

In addition to the discussion of Wood above, the Examiner notes that in Example 1 thereof, a product known as Emcol® 4500 surfactant is used to make a pressure sensitive adhesive formulation therein. The pressure sensitive adhesive formulation of Example 1 is then subjected to deionization in Example 3, according to Wood's invention. The Examiner

relies on Pastorino et al as disclosing that Emcol® 4500 is a sodium dioctyl sulfosuccinate (column 4, lines 4-5).

BASF discloses a product Acronal® A 220 as an acrylic polymer having very good inherent adhesion and tack, and that the wetting process on various substrates with Acronal® A 220 formulations can be facilitated by the use of 0.5-1.5% of a standard anionic surfactant such as the sodium salt of dioctyl sulfosuccinate.

The Examiner holds that it would have been obvious to add the sodium salt of dioctyl sulfosuccinate to the adhesive of Wood for improving its wettability in view of BASF.

In reply, without the present disclosure as a guide, one skilled in the art would not have combined Wood with BASF. As discussed above, Wood discloses the necessity for removing ionic compounds from polymer dispersions. Why, absent the present disclosure as a guide, would one skilled in the art remove such ionic compounds and then add back an ionic compound with any expectation of success? In addition, Applicants note that the examples in the specification herein, at page 10, line 30 through the end of page 12, exemplify various commercially customary polymer dispersions, including Acronal® A 220, both treated according to the present invention and untreated. Table 1 therein shows water whitening of the untreated Acronal® A 220. One skilled in the art reading BASF might expect better wetting action after adding the sodium salt of dioctyl sulfosuccinate to Acronal® A 220 but would also expect water whitening behavior, in view of Wood's disclosure of the deleterious effects of ionic compounds.

In addition, in the comparative data in the specification, Applicants disclose at page 11, lines 18-21 that the samples subjected to diafiltration without Lumiten (i.e., Lumiten I-SC is a diethylhexyl ester of sulfonated succinic acid, as described in the specification at page 11, line 11) show poor wetting behavior, but following the addition of Lumiten, the wetting of

the samples on the surface to be coated was good, and the samples were dried at 90°C (3 minutes) to form homogeneous adhesive coatings.

The Examiner responds to the above arguments by finding that one of ordinary skill in the art would tolerate a small decrease in the improvement of water whitening resistance with a concurrent improvement in wettability property. This response appears to imply that the Examiner acknowledges the expectation of at least some decrease in water whitening resistance. One of ordinary skill in the art would nonetheless not have combined Wood and BASF for applications where a decrease in water whitening resistance is not tolerable and where the skilled person does not want to compromise the improvements. Nevertheless, the above-discussed comparative data shows no tolerable decrease in water whitening resistance. The unexpected result of the invention as claimed is the absence of the expected decrease of water whitening resistance. The data in Table 1 of the specification refer to a water whitening assessment on a scale reaching from 0 (no clouding) to 4 (completely white). A film made from Acronal A220 is completely white after 40 min. immersion in water. A film made from Acronal A220 after ion removal by diafiltration is completely transparent after 40 min. immersion in water, showing that removal of ions is essential. A film made from Acronal A220 after ion removal and after re-addition of a substantial amount (1%) of a salt of a dialkyl ester of sulfonated succinic acid (Lumiten I-SC) would be expected to show some decrease in water whitening resistance after 40min. immersion in water, e.g. a value of at least 1 and up to 4 on the test scale. It has been found that the film is unexpectedly completely transparent after 40 min. immersion in water. This is an unexpected result indicating non-obviousness.

The Examiner has previously found that Table 1 in the specification points to inferior resistance to water-whitening when the Lumiten is added, relying on the data at 60 minutes.

Applicants replied, and continue to maintain, that while there is a somewhat difference in result between "0" and "0-1", this difference is insignificant, especially when compared to the significant difference in wetting behavior.

For all the above reasons, it is respectfully requested that this rejection be REVERSED.

Ground (F)

Claims 1-13, 15-18, 20-21, 23 and 25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wood, as evidenced by Pastorino et al, in view of Auchter et al. The rejection is untenable and should not be sustained.

Wood and Pastorino et al are relied on for the same reasons as in Ground (E), *supra*. Applicants' discussion thereof in Ground (E) is hereby incorporated by reference. Auchter et al is now relied on in place of BASF.

Auchter et al discloses a solution comprising a) a salt of a monoalkyl or dialkyl ester of a sulfonated dicarboxylic acid and b) an organic solvent having a boiling point of more than 250°C at 1 bar, and to aqueous polymer dispersions using the solution as a wetting agent, for application to substrates such as coatings or adhesives [0001]-[0003]. The invention of Auchter et al involves the addition of the above-discussed organic solvent, which results in a wetting agent having relatively low foaming tendency [0006]-[0007] compared to the normally severe foaming sulfonated succinic acid derivatives, which are species of component a) therein.

The Examiner holds that it would have been obvious to one of ordinary skill in the art to add the above-discussed solution of Auchter et al as a wetting agent to the adhesive of Wood for improving its wettability.

In reply, Applicants' reply in Ground (E) is incorporated by reference herein, except that Auchter et al replaces BASF.

For all the above reasons, it is respectfully requested that this rejection be REVERSED.

Ground (G)

Claim 22 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Wood as evidenced by Pastorino et al, in view of BASF and Nakabayashi et al. The rejection is untenable and should not be sustained.

Even if diafiltration were used as the deionization mechanism of Wood modified by BASF, the result would still not be the presently-claimed invention. Accordingly, it is respectfully requested that this rejection be REVERSED.

Ground (H)

Claim 22 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Wood as evidenced by Pastorino et al, in view of Auchter et al and Nakabayashi et al. The rejection is untenable and should not be sustained.

Even if diafiltration were used as the deionization mechanism of Wood modified by Auchter et al, the result would still not be the presently-claimed invention. Accordingly, it is respectfully requested that this rejection be REVERSED.

VIII. CONCLUSION

For the above reasons, it is respectfully requested that all rejections be REVERSED.

Respectfully submitted,

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CLAIMS APPENDIX

Claim 1: A method of enhancing at least one performance property of an aqueous polymer dispersion comprising at least one water-soluble ionic compound, which comprises

removing at least 50 mol% of the at least one water-soluble ionic compound from the polymer dispersion, and then

adding at least one salt of a monoalkyl or dialkyl ester of a sulfonated dicarboxylic acid.

Claim 2: The method of claim 1, wherein the aqueous polymer dispersion is obtained by emulsion polymerization.

Claim 3: The method of claim 1, wherein the dispersed polymer in the polymer dispersion is a polymer obtained by free-radical addition polymerization which is synthesized from at least 60% by weight of at least one principal monomer selected from the group consisting of C_1 to C_{20} alkyl (meth)acrylates, vinyl esters of carboxylic acids comprising up to 20 carbon atoms, vinylaromatics comprising up to 20 carbon atoms, ethylenically unsaturated nitriles, vinyl halides, vinyl ethers of alcohols comprising 1 to 10 carbon atoms, aliphatic hydrocarbons comprising 2 to 8 carbon atoms and one or two double bonds, and mixtures thereof.

Claim 4: The method of claim 1, wherein the at least one water-soluble ionic compound is an ionic emulsifier.

Claim 5: The method of claim 1, wherein at least 90 mol% of the at least one water-soluble ionic compound is removed.

Claim 6: The method of claim 1, wherein the at least one ionic compound is removed by treating the dispersion with an ion exchanger resin, by diafiltration or by dialysis.

Claim 7: The method of claim 1, wherein the at least one salt of a monoalkyl or dialkyl ester of a sulfonated dicarboxylic acid is a dialkyl ester.

Claim 8: The method of claim 1, wherein the at least one salt of a monoalkyl or dialkyl ester of a sulfonated dicarboxylic acid is a dialkyl ester of sulfonated succinic acid.

Claim 9: The method of claim 1, wherein the at least one salt of a monoalkyl or dialkyl ester of a sulfonated dicarboxylic acid is added in an amount of from 0.01 to 5 parts by weight per 100 parts by weight of the dispersed polymer.

Claim 21: The method of claim 6, wherein the at least one ionic compound is removed by treating the dispersion with an ion exchanger resin.

Claim 22: The method of claim 6, wherein the at least one ionic compound is removed by diafiltration.

Claim 23: The method of claim 6, wherein the at least one ionic compound is removed by dialysis.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.